

further prove that they are merely stragglers from lower elevations.

Wynter-Blyth (*op. cit.*) records eleven confirmed larval host plants of *athamas*, all belonging to Leguminosae. Given the recent distinction of *agraria*, it must be clarified whether both species feed on the same plants or whether some of the eleven recorded host plants are exclusively fed upon by either species.

Both species evidently like warm areas in regions of heavy rainfall, with *athamas* also colonising regions of moderate rainfall such as Gujarat. *P. agraria* seems to be essentially a low elevation species, while *athamas* is more flexible. Both species have been recorded at over-ripe fruit and faeces (*pers. obs.*) and there is every likelihood that *agraria* will also be attracted to other decomposing substances favoured by the genera *Charaxes* Ochseneimer and *Polyura* Billberg, including *P. athamas*. Wet sand will probably prove an attractant, as it is to other members of the genus.

Other behaviour of *agraria* seems to be the same as *athamas*, e.g. aggressive territoriality in males, rapid flight, and the fondness for basking on prominent perches.

Larsen (*op. cit.*) proposes the trivial name Anomalous Common Nawab for *P. agraria*. Given its relative scarcity, the 'Common' is misleading, so it would be best to drop it leaving 'Anomalous Nawab'. It seems the 'Common' was retained to imply its close relation with the Common Nawab *P. athamas*, but this relationship is in any case so obvious that it hardly requires to be included in the trivial name.

In conclusion, I would like to point out that although *P. agraria* appears to be scarce in certain localities, the main reason that so little is known about it is that it has been overlooked among the commoner *P. athamas*. It is not in any sense 'threatened', 'endangered' or on the verge of extinction.

ACKNOWLEDGEMENT

I am grateful to the anonymous referee for picking out the flaws in the paper.

May 18, 1999

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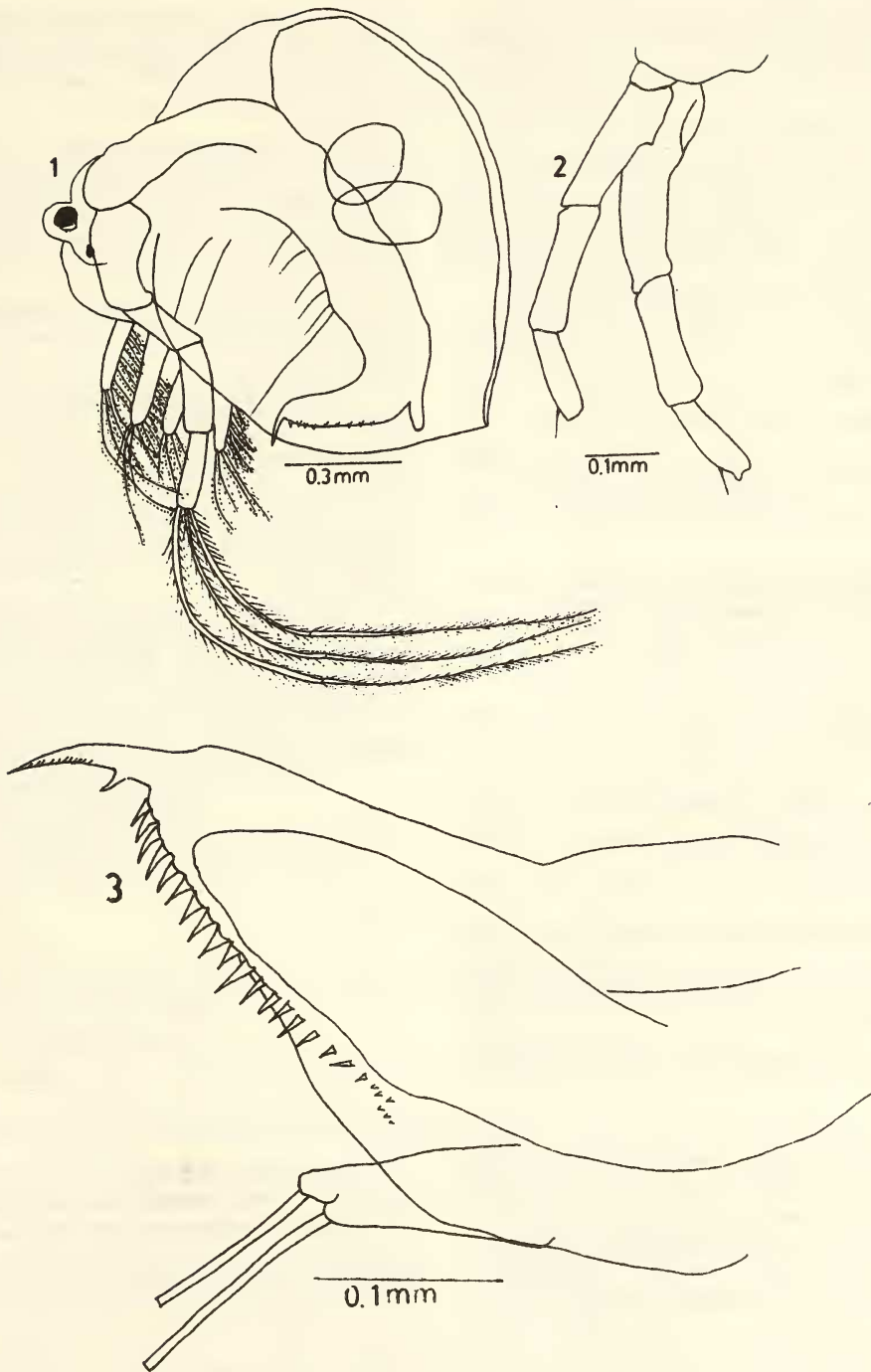
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26. NEW RECORD OF AN ARCTIC SPECIES *HOLOPEDIDIUM GIBBERUM* ZADDACH (CRUSTACEA : CLADOCERA) FROM CHHANGU LAKE, SIKKIM

(With three text-figures)

The family Holopedidae is so far known to occur only in the mountain lakes of Europe and North America. From this family only two species, *Holopedium gibberum* and *H. amazonicum* have been recorded so far. The occurrence of *Holopedium gibberum* Zaddach in

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Figs. 1-3: *Holopedium gibberum*, female: 1. lateral view; 2. antenna; 3. postabdomen.

the lakes of Sikkim is a new record for Asia.

A survey of zooplankton was conducted by one of us (BNR) in Chhangu lake, East Sikkim from July 1993 to July 1995. Collections were made at frequent intervals and the water and plankton samples were analysed for physico-chemical parameters and zooplankton biodiversity. The present species was collected from Chhangu lake, 38 km from Gangtok, East Sikkim. The size of the lake is 91,393.5 sq.m, at an altitude of 3,779 m above msl. The physico-chemical parameters of the lake water are as follows: pH 6.1-6.8; dissolved oxygen 3.75-8.6 mg/l; calcium 0.802-2.204 mg/l; sodium 0.007-0.022 mg/l; potassium 0.006-0.22 mg/l; nitrate 0.467-1.375 µg/l; phosphate 0.13-1.180 mg/l and total solids 32.592-116.875 mg/l.

***Holopedium gibberum* Zaddach 1855**

Material Examined: Seven females from Chhangu lake, May 1995, coll. B.N. Roy, East Sikkim.

Female: Body size 1.247±0.03 mm (without gelatinous mantle). Ventral margin of valves with fine spines. Six pairs of foliaceous legs. Head small, enclosing a small compound eye (Fig. 1). Antennule small, situated ventrally. Rostrum absent. Antennae long, biramous and almost twice the size of the body (Fig. 2). Postabdomen elongated and tapering, anal spines numerous, up to 20 (Fig. 3). Claws setulated along the concave surface with one basal spine.

Remarks: The species of the genus *Holopedium* are enclosed in a large gelatinous

mantle, which is shed during ecdysis but regenerated within two hours (Hamilton, 1958). They are known to swim ventral side up, an adaptation mainly necessary to trap the suspended organic matter present in the water column. *H. gibberum* has been found by other workers mostly in waters with not more than 20 and often less than 10 mg/l calcium⁺⁺ (Hamilton, 1958; Thienemann, 1926; Smyly, 1968) and this is also found true in the present study where the calcium levels of the lake water were very low (2.204 mg/l).

Michael and Sharma (1988) have reported eight families from India. The present study adds one more family and the total number of families of Cladocera of India now increases to nine. Except for China (nine families), all the neighbouring countries of India have only six families each.

We thank the Director, ZSI, Calcutta and the Officer-in-charge, MBS, ZSI, Chennai for the facilities provided.

January 13, 1998

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